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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/026,914	12/27/2001	Birgit Linhart	966927.00006	6890

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EXAMINER	
HINES, JANA A	

ART UNIT	PAPER NUMBER
1645	

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06/24/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/026,914	LINHART ET AL.	
	Examiner	Art Unit	
	JaNa Hines	1645	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 March 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *7,9,22-25 and 36-47* is/are pending in the application.

4a) Of the above claim(s) *7,9,22-25,36-41 and 44* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *42,43 and 45-47* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The In view of the Appeal Brief filed on March 18, 2009, PROSECUTION IS HEREBY REOPENED. For the reasons set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below.

Claim Status

2. Claims 1-6, 8, 10-21, 26-35 and 48-51 are cancelled. Claims 7, 9, 22-25, 36-41 and 44 are withdrawn from consideration. Claims 42-43 and 45-47 are under consideration in this office action.

Withdrawal of Rejections

3. The following rejections have been withdrawn:

A) The written description rejection of claims 42-43 under 35 U.S.C. 112, first paragraph; and

B) The rejection of claims 42-43 and 45-47 under 35 U.S.C. 112, second paragraph.

Previous Grounds of Rejection

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 42-43 and 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ball et al., (WO 95/34578) in view of Vrtala et al., (1996. J. Allergy Clinl Immun. Vol. 97(3): 781-787).

Claim 42 is drawn to a method of preparing fusion polypeptides consisting of timothy grass pollen allergens for use as immunotherapeutic agents comprising: (a) providing a polynucleotide sequence encoding the fusion polypeptide; (b) introducing said polynucleotide sequence into a host cell; (c) culturing the host cell obtained in b) under conditions such that the fusion

polypeptide is expressed; and (d) recovering the expressed fusion polypeptide from the cultured host cell; (e) testing the fusion polypeptide as candidate immunotherapeutic agents by administering said polypeptide to a test animal and selecting as immunotherapeutic agents those fusion polypeptides that induce IgE-blocking antibodies and induce stronger immune responses compared with the individual components or fragments thereof. Claim 43 is drawn to the polynucleotide sequence the timothy grass pollen polypeptide be obtained using PCR technology.

Claim 45 is drawn to a pharmaceutical composition comprising one or more fusion allergens of timothy grass pollen allergens as immunotherapeutic agents, wherein said agents consists of fusion allergens of timothy grass pollen allergens which have been identified by a method comprising the steps of: (a) providing fusion allergens of naturally occurring timothy grass pollen allergens; (b) challenging an immunological model with said fusion allergens; (c) selecting as candidate immunotherapeutic agents, those fusion allergens which induce IgE-blocking antibodies and have reduced allergenic activity compared with the respective allergens which comprise the fusion allergen. Claim 46 is drawn to a hybrid allergen consisting of two or more timothy grass pollen allergens. Claim 47 is drawn to the hybrid allergen wherein the hybrid allergen is a fusion of two or more proteins selected from the group consisting of timothy grass pollen allergens rPhl p1, rPhl p2 and rPhlp5.

Ball et al., teach a timothy grass pollen allergen as a recombinant or synthetic protein or polypeptide comprising Phl p1 to enhance the display of antigencity (page 3, lines 33-35). Ball et al., teach the protein or polypeptide may be fused to an additional polypeptide; both polypeptides are expressed as a fusion protein in prokaryotic or eukaryotic cells (page 4, lines 1-4). The recombinant DNA molecule codes for polypeptides which induce an antibody response (page 3, lines 20-25). Ball et al., teach the timothy grass pollen allergens block the crosslinking of IgE; modulate the immune response; and induce tolerance by immunotherapy with a minimum of anaphylactic side effects (page 1, lines 29-35). Therefore, Ball et al., teach that the Phl p1 timothy grass pollen allergen is part of a fusion polypeptide, however Ball et al., do not teach fusion proteins consisting of two or more timothy grass pollen allergens.

Vrtala et al., teach fusion polypeptides do not significantly affect the allergens IgE-binding capacity (page 782, col.1). Vrtala et al., teach the construction of the expression plasmids for Phl p 1, Phl p 2 and Phl p 5 (page 782, col. 1). cDNA clones were transcribed by polymerase chain reaction to DNA fragments coding for the mature allergens (page 782, col. 1). Phl p1 and Phl p2, were then inserted as fragments and the plasmids were transfected into *E.coli* host cells (page 782, co1.1). Phl pl, Phl p2 and Phl p5 are used for sensitization determination (page 781-2, co1.2-1). Vrtala et al., teach grass pollen allergen Phl p1 is a target for IgE antibodies in more than 95% of patients. Vrtala et al., teach Phl p5 is particularly important because of its extremely high IgE-binding

capacity; and Phl p2 represents a low molecular weight allergen for 60% of patients (page 781, co1.1-2).

Therefore it would have been prima facie obvious at the time of applicants' invention to apply Vrtala et al., teach recombinant Phl pl, Phl p2 and Phl p5 to Ball et al's pharmaceutical composition or hybrid allergen in order to enhance antigencity. One of ordinary skill in the art would have a reasonable expectation of success by including additional timothy grass pollen allergens fusion polypeptides because the allergens act as the target for IgE antibodies and are important because of their extremely high IgE-binding capacity, and Ball et al., teach the desire to effect antigenicity, and the binding of IgE using fusion polypeptides. Furthermore, no more than routine skill would have been required when Ball et al., teach that timothy grass pollen allergens are amenable to being comprised within fusion proteins and/or hybrid polypeptides and are amenable to fusion with any other expressible polypeptide, while Vrtala et al., teach these same timothy grass pollen allergens are expressible in prokaryotic or eukaryotic cells, thus there is a reasonable expectation of success when no more than routine skill would have been required to create a fusion or hybrid polypeptide comprising one or more timothy grass pollen allergens that do not significantly affect the allergens IgE-binding capacity. Finally it would have been prima facie obvious to combine the invention of Ball et al., and Vrtala et al., to advantageously achieve at fusion polypeptides or hybrid allergens that block the crosslinking of IgE; modulate the immune response; and induce tolerance by immunotherapy with a minimum of anaphylactic side effects.

Response to Arguments

5. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine,* 837F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones,* 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, it was prima facie obvious at the time of applicants' invention to apply Vrtala et al's recombinant Phi pl, Phi p2 and Phi p5 to Ball et al's pharmaceutical composition or hybrid allergen in order to enhance antigencity. One of ordinary skill in the art would find motivation because there was a reasonable expectation of success indicated by Ball et al., to incorporate additional expressible polypeptides. There is no teaching that the additional polypeptides can be timothy grass pollen allergens, since they are expressible; act as the target for IgE antibodies; are important because of their extremely high IgE-binding capacity, and effect antigenicity. Therefore, contrary to applicants' assertions, the Ball et al., and Vrtala et al., provide sufficient 'suggestion, teaching and motivation.

Applicants argue that prior to the current invention, no one has taught nor suggested that the fusion of hybrid allergens can produce immunotherapeutic

agents more desirable than the respective component allergens and that such was indeed a surprise. However, Applicants admit the Ball et al., teach a fusion protein comprising a fusion of one timothy grass allergen. Therefore Ball et al., meet the limitation of the claims. The administration is irrelevant since the claims are drawn to a product, not a method of administration. Furthermore, the use of the fused polypeptides is irrelevant, because the use does not prevent the limitations from being meet.

M.P.E.P 2113 [R-I] entitled Product-by-Process Claims states that such claims are not limited to the manipulations of the recited steps, only the structure implied by the steps. "[E]ven though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." *In re Thorpe,* 777 F.2d 695,698, 227 USPQ 964, 966 (Fed. Cir. 1985) (citations omitted) (Claim was directed to a novolac color developer. The process of making the developer was allowed. The difference between the inventive process and the prior art was the addition of metal oxide and carboxylic acid as separate ingredients instead of adding the more expensive pre-reacted metal carboxylate. The product-by-process claim was rejected because the end product, in both the prior art and the allowed process, ends up containing metal carboxylate. The fact that the metal carboxylate is not directly added, but is instead produced in-situ does not change

the end product.). The structure implied by the process steps should be considered when assessing the patentability of product- by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product.

Applicants argue that art does not teach fusion proteins of Phi pl epitopes and expressible proteins so as to reconfigure the epitopic configuration of the allergen thereby allowing it to be used as an immunotherapeutic agent. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies i.e., fusion proteins of Phi pl epitopes and expressible proteins so as to reconfigure the epitopic configuration of the allergen thereby allowing it to be used as an immunotherapeutic agents are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns,* 988 F.2d 1181,26 USPQ2d 1057 (Fed. Cir. 1993). Therefore, applicants' arguments are not persuasive.

"[T]he discovery of a previously unappreciated property of a prior art composition, or of a scientific explanation for the prior art's functioning, does not render the old composition patentably new to the discoverer." *Atlas Powder Co. v. Ireco Inc.,* 190 F.3d 1342,1347, 51 USPQ2d 1943, 1947 (Fed. Cir. 1999). Thus

the claiming of a new use, new function or unknown property which is inherently present in the prior art does not necessarily make the claim patentable. *In re Best,* 562 F.2d 1252, 1254, 195 USPQ 430,433 (CCPA 1977). In *In re Crish,* 393 F.3d 1253, 1258, 73 USPQ2d 1364, 1368 (Fed. Cir. 2004), the court held that the claimed promoter sequence obtained by sequencing a prior art plasmid that was not previously sequenced was anticipated by the prior art plasmid which necessarily possessed the same DNA sequence as the claimed oligonucleotides. The court stated that "just as the discovery of properties of a known material does not make it novel, the identification and characterization of a prior art material also does not make it novel." Id. See also MPEP § 2112.01 with regard to inherency and product-by-process claims and MPEP §2141.02 with regard to inherency and rejections under 35 U.S.C. 103. Furthermore, the inherent feature need not be recognized at the time of the prior art.

Applicants' argue that the art does not recognize the use of the epitopes as immunotherapeutic agents. In response to applicant's argument that the art does not appreciate the immunotherapeutic abilities of the allergens, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. Here the art clearly teach the creation of a fusion allergen wherein said allergen is a fusion protein of one or more timothy grass pollen allergens, since Ball et al., already teach the need to have a fusion polypeptide. Ball et al., teach that timothy grass allergenic

proteins such as Phi pl are amenable to being comprised Within fusion proteins and/or polypeptides and can be fused to any other polypeptide that can be expressed as a fusion protein in prokaryotic or eukaryotic cells. Furthermore, Vrtala et al., teach polypeptides wherein no more than routine skill would have been required to create a hybrid polypeptide comprising at least two timothy grass allergens. Therefore applicants' arguments are not persuasive and the rejection is maintained.

Response to Arguments

6. Applicant's arguments with respect to claims 42-43 and 45-47 have been considered but are moot in view of the new ground(s) of rejection.

New Grounds of Rejection

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claim 45 is rejected under 35 U.S.C. 102(b) as being anticipated by Ball et al., (WO 95/34578).

Claim 45 is drawn to a pharmaceutical composition comprising one or more fusion allergens of timothy grass pollen allergens as immunotherapeutic

agents, wherein said agents consists of fusion allergens of timothy grass pollen allergens which have been identified by a method comprising the steps of: (a) providing fusion allergens of naturally occurring timothy grass pollen allergens; (b) challenging an immunological model with said fusion allergens; (c) selecting as candidate immunotherapeutic agents, those fusion allergens which induce IgE-blocking antibodies and have reduced allergenic activity compared with the respective allergens which comprise the fusion allergen.

Ball et al., teach a timothy grass pollen allergen as a recombinant or synthetic protein or polypeptide comprising Phl p1 to enhance the display of antigencity (page 3, lines 33-35). Ball et al., teach the protein or polypeptide may be fused to an additional polypeptide; both polypeptides are expressed as a fusion protein in prokaryotic or eukaryotic cells (page 4, lines 1-4). The recombinant DNA molecule codes for polypeptides which induce an antibody response (page 3, lines 20-25). The recombinant protein of Phl p1 may be fused to an additional polypeptide such as B-galactosidase, GST or any other polypeptide that can be expressed as a fusion protein in prokaryotic or eukaryotic cells (page 3-4, lines 32-4). Ball et al., teach the timothy grass pollen allergens block the crosslinking of IgE; modulate the immune response; and induce tolerance by immunotherapy with a minimum of anaphylactic side effects (page 1, lines 29-35). Ball et al., teach an in vitro method for diagnosing allergy to plant proteins by determining humoral antibody IgE towards the grass pollen (page 5, lines 1-15). Ball et al., teach measuring the cellular reaction

against Phl p1 based upon the reactions of histamine release and T cell proliferation (page 5, lines 15-33).

Therefore, Ball et al., teach the instant invention.

Claim Rejections - 35 USC § 102

8. Claim 45 is rejected under 35 U.S.C. 102(b) as being anticipated by Ball et al., (US Patent 6,008,340 published December 28, 1999).

Ball et al., teach the major grass pollen allergen Phl p1 along with recombinant allergens, fragments, DNA molecules, vectors and host cells containing DNA. Ball et al., teach the nucleotide sequence which codes for a polypeptide displaying the antigenicity of at least one of the Phl p1 epitopes clones (col. 2, lines 30-40). Ball et al., teach a synthetic protein or polypeptide comprising an essential part of Phl p1 epitope of at least one of the sequences set forth by SEQ ID NOs: 5,7 and 9-28 (col. 2-3, lines 65-1). Ball et al., teach the polypeptides may be fused to an additional polypeptides such as B-galactosidase, GST or lambda cII protein or any other polypeptide that can be expressed as a fusion protein in prokaryotic or eukaryotic cells (col. 3, lines 1-5). Ball et al., teach an in vitro method for diagnosing allergy to plant protein by determining humoral antibodies directed towards the plant proteins, mostly IgE class (col. 3, lines 43-47). Ball et al., teach recombinant Phl p I epitopes being expressed as B-galactosidase fusion proteins and being tested for IgE binding (col. 8, lines 15-20). Ball et al., teach the therapeutic approach wherein blockage of IgE thereby directly inhibiting mediator release (col. 9, lines 33-35). Ball et al.,

teach using a recombinant DNA expression vector or cloning system (page 3 lines 26-30).

Therefore, Ball et al., teach the instant invention.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

9. Claims 42-43 and 45-47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ball et al., (US Patent 6,008,340 published December 28, 1999) in view of Vrtala et al., (1996. J. Allergy Clin. Immun. Vol. 97(3): 781-787).

Claim 42 is drawn to a method of preparing fusion polypeptides consisting of timothy grass pollen allergens for use as immunotherapeutic agents comprising: (a) providing a polynucleotide sequence encoding the fusion polypeptide; (b) introducing said polynucleotide sequence into a host cell; (c) culturing the host cell obtained in b) under conditions such that the fusion polypeptide is expressed; and (d) recovering the expressed fusion polypeptide from the cultured host cell; (e) testing the fusion polypeptide as candidate immunotherapeutic agents by administering said polypeptide to a test animal and selecting as immunotherapeutic agents those fusion polypeptides that induce

IgE-blocking antibodies and induce stronger immune responses compared with the individual components or fragments thereof. Claim 43 is drawn to the polynucleotide sequence the timothy grass pollen polypeptide be obtained using PCR technology.

Claim 45 is drawn to a pharmaceutical composition comprising one or more fusion allergens of timothy grass pollen allergens as immunotherapeutic agents, wherein said agents consists of fusion allergens of timothy grass pollen allergens which have been identified by a method comprising the steps of: (a) providing fusion allergens of naturally occurring timothy grass pollen allergens; (b) challenging an immunological model with said fusion allergens; (c) selecting as candidate immunotherapeutic agents, those fusion allergens which induce IgE-blocking antibodies and have reduced allergenic activity compared with the respective allergens which comprise the fusion allergen. Claim 46 is drawn to a hybrid allergen consisting of two or more timothy grass pollen allergens. Claim 47 is drawn to the hybrid allergen wherein the hybrid allergen is a fusion of two or more proteins selected from the group consisting of timothy grass pollen allergens rPhL p1, rPhl p2 and rPhlp5.

Ball et al., teach the major grass pollen allergen Phl p1 along with recombinant allergens, fragments, DNA molecules, vectors and host cells containing DNA. Ball et al., teach the nucleotide sequence which codes for a polypeptide displaying the antigenicity of at least one of the Phl p1 epitopes clones (col. 2, lines 30-40). Ball et al., teach a synthetic protein or polypeptide

comprising an essential part of Phl p1 epitope of at least one of the sequences set forth by SEQ ID NOs: 5,7 and 9-28 (col. 2-3, lines 65-1). Ball et al., teach the polypeptides may be fused to an additional polypeptides such as B-galactosidase, GST or lambda cII protein or any other polypeptide that can be expressed as a fusion protein in prokaryotic or eukaryotic cells (col. 3, lines 1-5). Ball et al., teach an in vitro method for diagnosing allergy to plant protein by determining humoral antibodies directed towards the plant proteins, mostly IgE class (col. 3, lines 43-47). Ball et al., teach recombinant Phl p I epitopes being expressed as B-galactosidase fusion proteins and being tested for IgE binding (col. 8, lines 15-20). Ball et al., teach the therapeutic approach wherein blockage of IgE thereby directly inhibiting mediator release (col. 9, lines 33-35). Ball et al., teach using a recombinant DNA expression vector or cloning system (page 3 lines 26-30). Ball et al., while teaching that the Phi pl can be part of a hybrid or fusion polypeptide does not specifically recite using another plant allergenic protein within the hybrid polypeptide.

Vrtala et al., teach timothy grass pollen allergens belong to the potent elicitors of type I allergy (abstract). Vrtala et al., teach that DNA coding for three major timothy grass pollen allergens representing group I (Phl pl), group II (Phl p 2) and group V (Phl p 5) was known (page 781). There is no relevant immunologic similarity between Phl p 2 and Phl p 1(page 781). The methods section teaches the construction of the expression plasmids for Phl p 1, Phl p 2 and Phl p 5 (page 782). cDNA clones were transcribed by polymerase chain reaction to DNA fragments coding for the mature allergens (page 782). Phl p 1

and Phl p 2, both of which contained ATG start codon in front of the coding region of the mature protein and genes were then inserted as fragments (page 782). The plasmids were transfected into *E.coli* host cells. The expression of the recombinant allergens in *E.coli* was also taught wherein cells were cultured, expressed, purified and thereby recovered (page 782).

Therefore it would have been prima facie obvious at the time of applicants' invention to modify the hybrid polypeptide as taught by Ball et al., to include a different plant allergen as taught by Vrtala et al., since Ball et al., already teach the need to have a hybrid or fusion polypeptide. Ball et al., teach that plant allergenic proteins such as Phl p1 are amenable to being comprised within fusion proteins and/or hybrid polypeptides and can be fused to any other polypeptide that can be expressed as a fusion protein in prokaryotic or eukaryotic cells, while Vrtala et al., teach polypeptides that can be expressed in prokaryotic or eukaryotic cells, thus no more than routine skill would have been required to create a hybrid polypeptide comprising at least to different plant allergens. Finally, there is a reasonable expectation of success in using the Phl p1 of Ball et al., and any other polypeptide such as the ones taught by Vrtala et al., when the prior art teaches that all of these plant allergens can be expressed as a fusion protein in prokaryotic or eukaryotic cells.

Conclusion

10. No claims allowed.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ja-Na Hines whose telephone number is 571-272-0859. The examiner can normally be reached Monday thru Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor Robert Mondesi, can be reached on 571-272-0956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/JaNa Hines/
Examiner, Art Unit 1645

/Robert B Mondesi/
Supervisory Patent Examiner, Art Unit 1645